Standardizing Pediatric Intravenous Push Medication Dilution: A Quality Improvement Project

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Disclosures

- As an OHSU employee, financial compensation was received for delivering staff education presentations during professional development days.

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Available Knowledge

- 2015 Institute for Safe Medication Practices (ISMP) safe practice guidelines for adult intravenous push medications (IVPM) represent consensus guidelines (ISMP, 2015)
  - Recommend against dilution of IVPM
  - Medications in commercially available cartridge-type syringes should NOT be withdrawn into another syringe
  - Medications should NOT be diluted or reconstituted into NS flush syringe

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Background

- Despite ISMP guidelines, lack of practice standardization persists
  - Unnecessary dilution of IVPM has emerged as an ongoing issue (Degnan et al., 2020).
  - Risk for increased medication error risk with unnecessary dilution
- Medication errors pose serious risk to patient safety

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Purpose

- Identify current (IVPM) preparation & administration practices at a Children's Hospital in the Pacific Northwest
  - Identify barriers to safe practice
  - Provide education on IVPM preparation and administration guidelines and standards
- Measure nurses' adherence to national standards for IVPM, post education
  - Identify barriers to achieving adherence

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Current Hospital Policy

- "unless medications require specific preparation, medications are to be left in the original packaging until just before administration" (Oregon Health & Science University, 2022a).
- "If reconstitution or removal is necessary… may be further diluted in a 10ml syringe if the medication is to be administered as an intravenous push" (Oregon Health & Science University, 2022b).

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Methods - Context

- Project setting
  - –80-bed pediatric medical center
  - –August 2022 – February 2023
- 37 RN from a 16-bed PIMC unit invited to pre and post education surveys
- 35 RN attended in-person education sessions in October 2022
- IRB determined non-human research

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Interventions

July 2022: practice survey exploring current IVPM practices

October 2022: in-person education & post education survey

December 2022: 1-month post education survey

February 2023: 3-month post education survey

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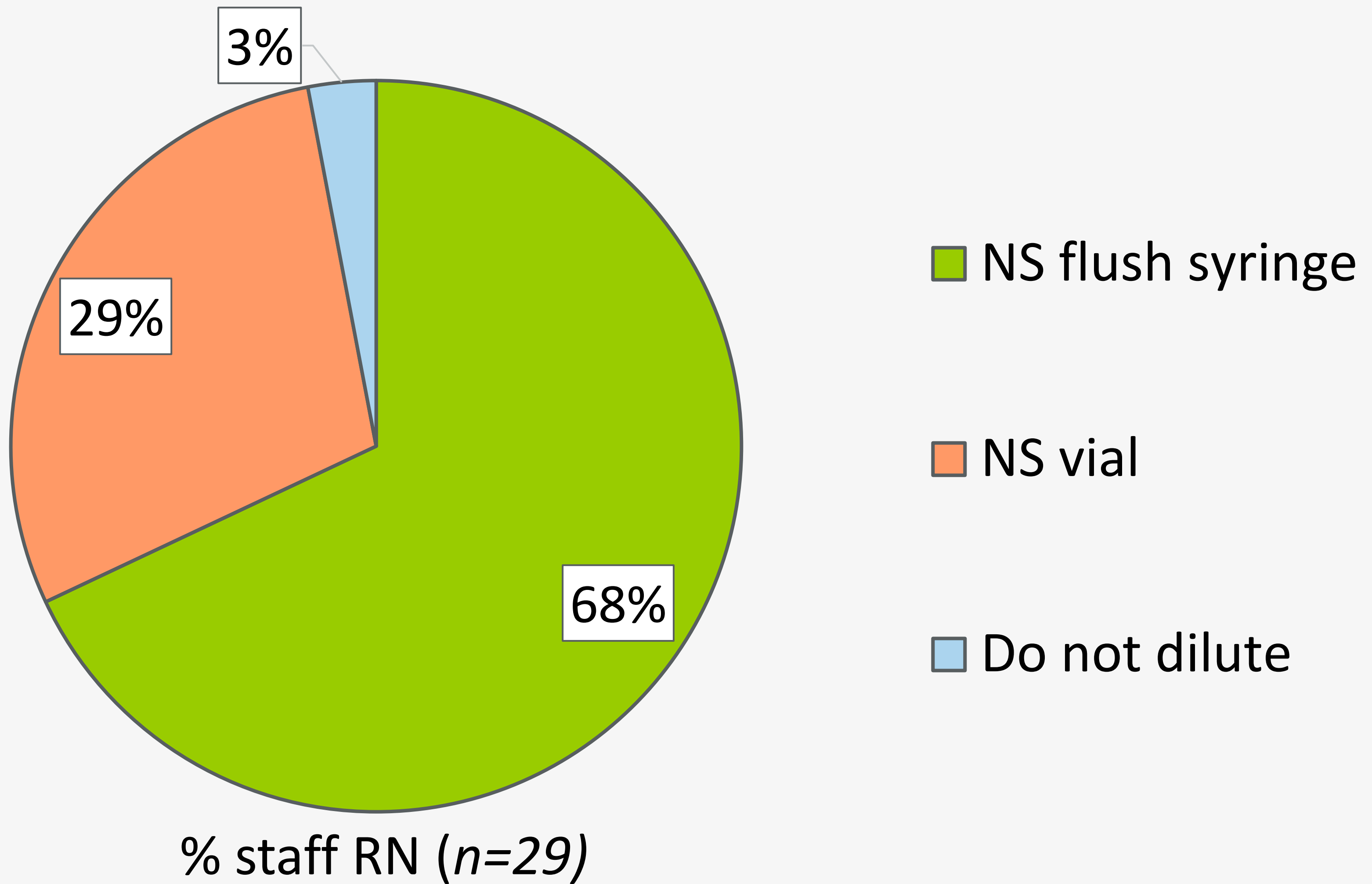
Measures & Analysis

- % PIMC nurses that have completed:
  - –In person education
  - –Post education surveys
- RN motivation to change practice
- Primary outcome:
  - –% PIMC nurses reporting change in IVPM dilution & administration practice

Pre education RN dilution process



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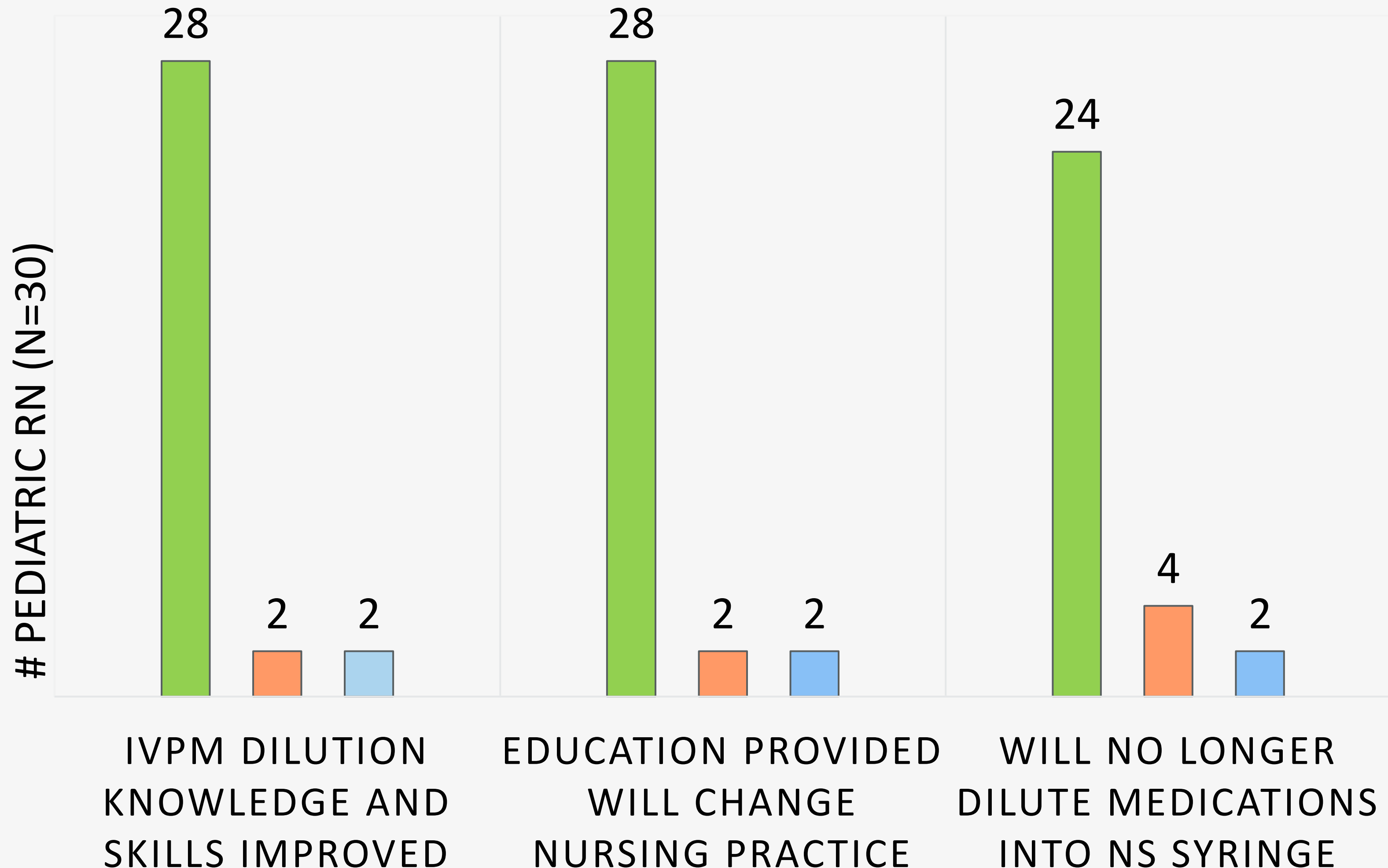
Immediate post education



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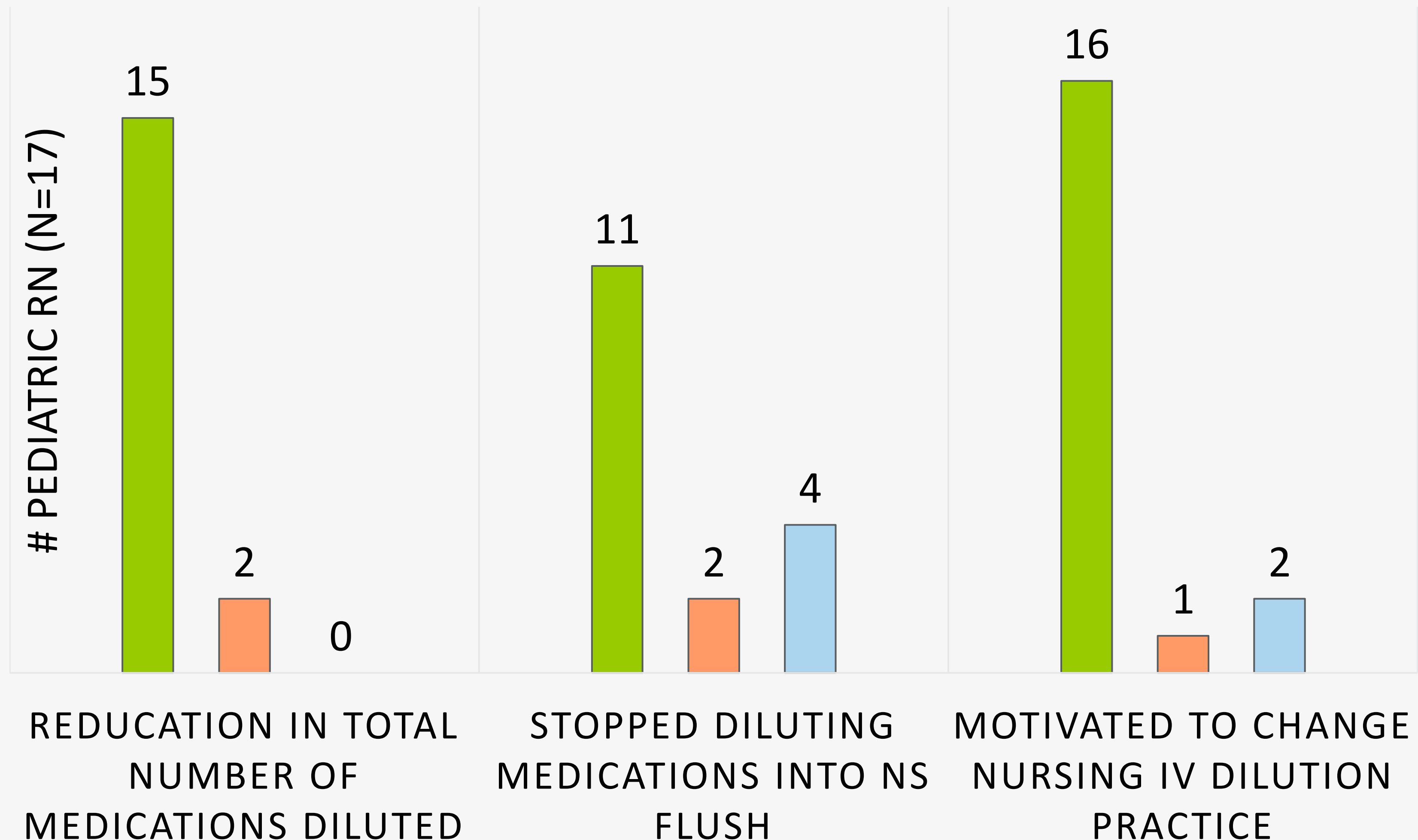
1-month post education



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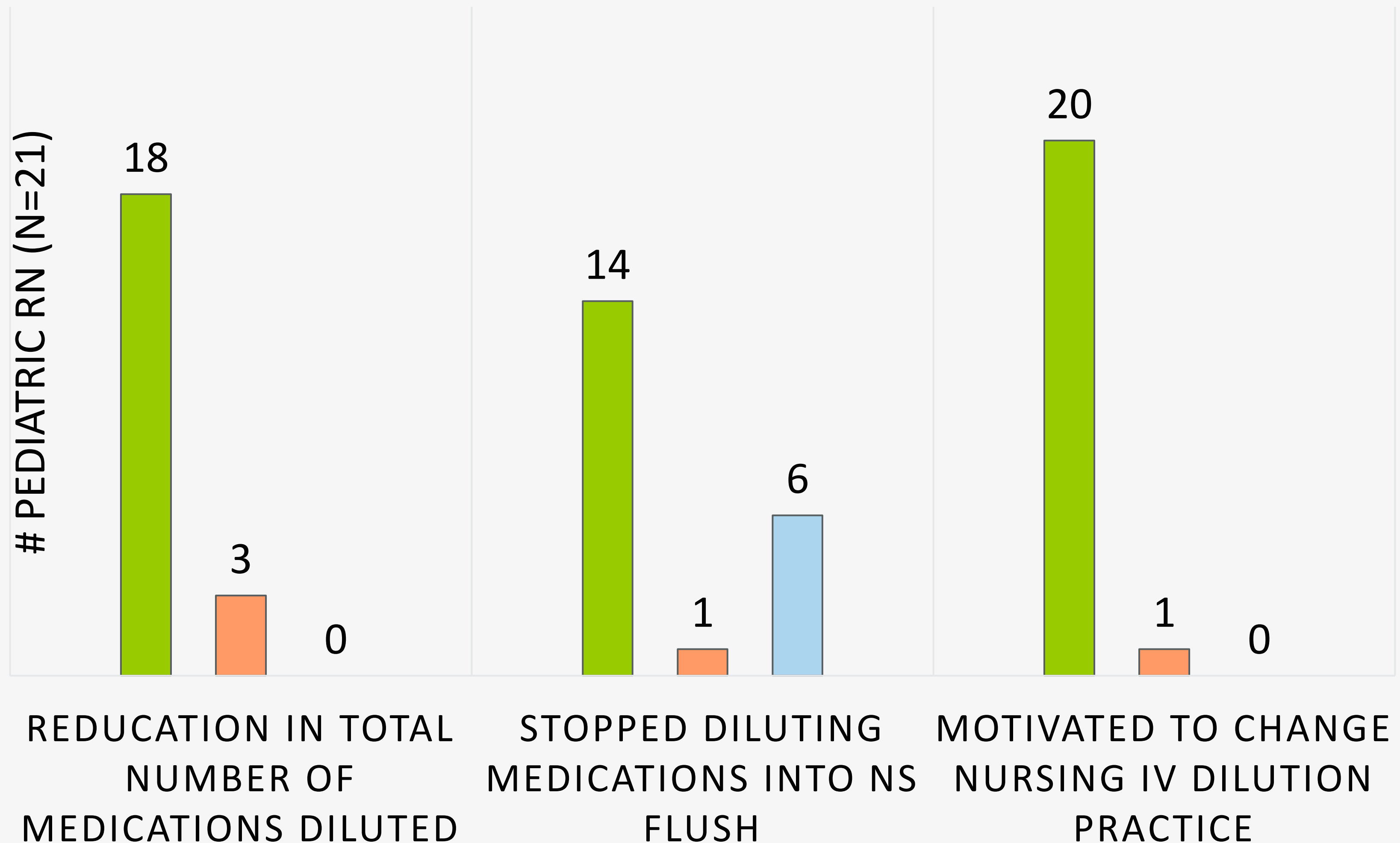
3-month post education



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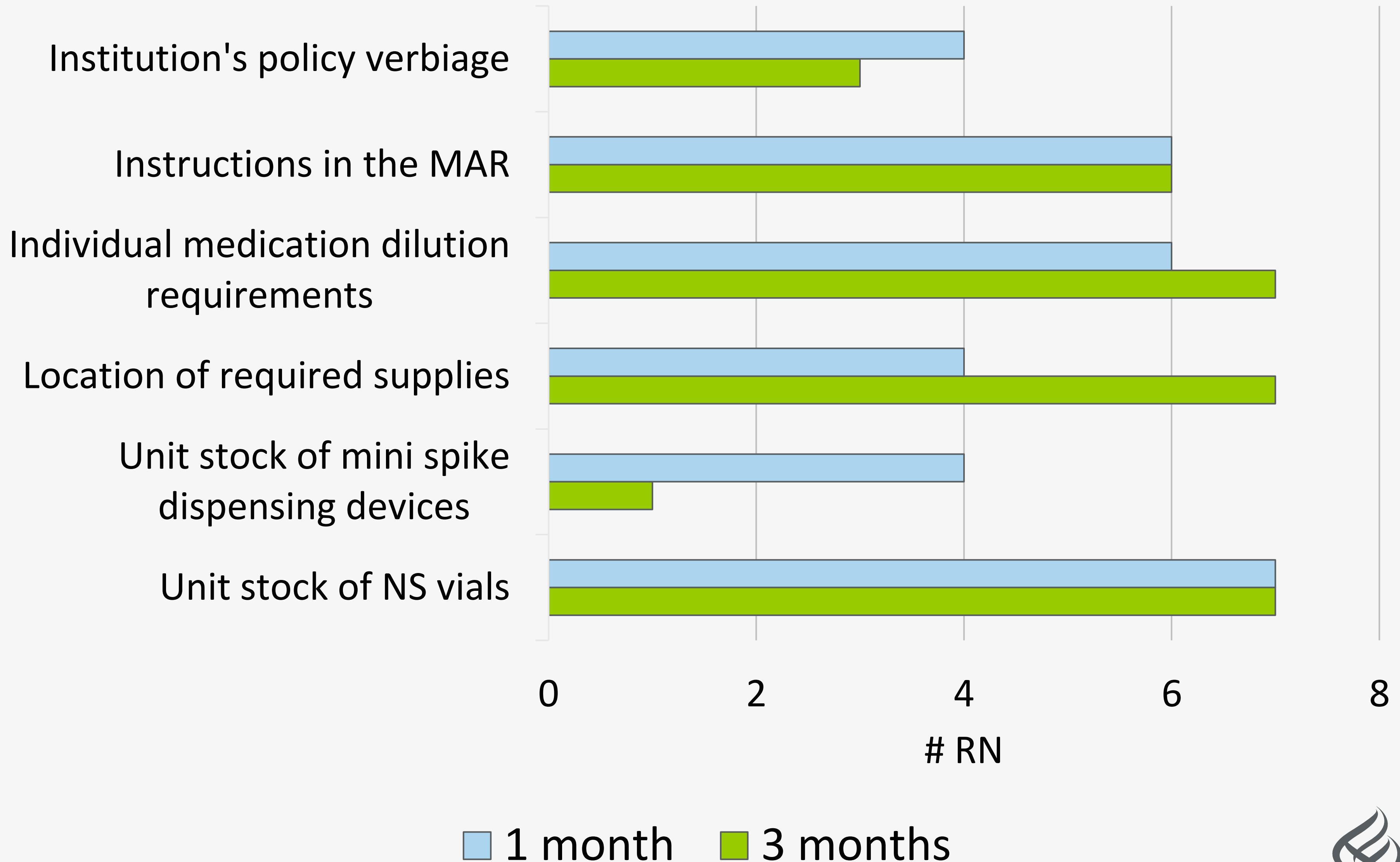
Reported barriers to practice change



Discussion

- Pre education, many staff RNs diluted IVPM
- Post education, majority RNs stopped diluting IVPM
- 1 month post education, increase in RNs who stopped diluting medications into NS flush
- Change persisted 3-months post education

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Implications for Practice

- IVPM education aligned nursing practice with national standards
- Barriers unique to pediatric medication administration limit impact of change
- Organizational buy-in & change necessary for sustained improvement

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Limitations

- Single unit implementation
- Small sample size (n = 35)
  - Variations in survey response samples
- RSV surge occurred mid-project implementation

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References

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Thank You